

Making knowledge accessible

Law professor receives Kaplan for health law research excellence

SLOWPOKE but steady

Reactor facility celebrates 35 years as a collaborative research tool

PRIDE Week

Campus runs diversity up the flagpole

Funding boosts research in race for new isotopes

Jamie Hanlon

The race to secure a viable, non-nuclear replacement supply of medical imaging isotopes isn't over, but a new funding announcement from Natural Resources Canada will help push a team of University of Alberta researchers toward a significant milestone.

“It is a true made-in-Canada solution.”

Sandy MacEwan

On Feb. 28, the Honourable Joe Oliver, Canada's minister of natural resources, announced a \$7-million contribution to U of A researcher Sandy MacEwan and his team's work on testing the viability of using cyclotron-produced isotopes to replace the supply chain of isotopes currently produced at Canada's Chalk River reactor.

This contribution will provide for project research from testing and clinical trials through to completion of the regulatory process that would approve the use of these isotopes for imaging in cardiac and cancer patients across the province. As work to complete the refitted Balmoral Centre nears completion, researchers will commence their work on producing the technetium-99m isotope using the new 24 mega-electron-volt circular particle accelerator.

Oliver, noting the important research being accomplished with MacEwan and his team's work, as well as that of colleagues at Advanced Cyclotron Systems Inc. and the Centre hospitalier universitaire de Sherbrooke, spoke optimistically of the very real potential of this model providing a non-nuclear solution in delivering the critical medical isotope.

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Getting back to nature



John Acorn, faculty service officer in the Department of Renewable Resources, leads a group of students on a river valley nature walk March 6.

U of A to remain strong despite economic uncertainty: President

Bryan Alary

The University of Alberta is a strong, vital institution, but it is at a crossroads, said President Indira Samarasekera in her annual State of the University address Feb. 28.

The university must make careful, strategic choices to address a structural deficit and position Alberta's flagship university for continued excellence in a "new normal" of budgetary constraints, she said.

"We are a strong university with many assets of considerable value that far outweigh the challenges we face," Samarasekera said. "The greatest of those assets are manifest in this room today—our talented people: our faculty, our staff, our students of the U of A.

"We can—and we will—define how this institution changes for the future so that we remain lively and vibrant, thoughtful and relevant, keenly interested in society's future and remarkably able to deliver on our promise of uplifting the whole people."

According to Samarasekera, the changing economic landscape means that in the coming months the institution will make fundamental changes to address its deficit and advocate

“We are a strong university with many assets of considerable value that far outweigh the challenges we face.”

Indira Samarasekera

for changes to the Campus Alberta funding model—without sacrificing quality of education or research.

"It is time for the government to be more strategic in its funding models. But it is also a time for faculty, staff and students of the University of Alberta to sharpen our focus, make careful and deliberate choices about our own institution and embrace our role as Alberta's leader in post-secondary education and research," Samarasekera said.

The Campus Alberta grant and tuition currently represent 90 per cent of the university's operating revenues. Even with a two per cent increase, revenues will not cover the cost of expenditures, the majority of which are salaries and benefits, and which are rising by an average of four per cent annually.

Despite efforts to reduce costs, increase fundraising, maximize revenues and find new ways to do things through efforts such as the Umbrella and Renaissance committees, Samarasekera said the gap between revenues and expenses is growing—estimated to reach \$12 million in 2013-14.

In previous years, the university has bridged the gap by using investment income, one-time funding and other revenue sources; however, Samarasekera added that is no longer possible given current and anticipated interest rates and volatile market conditions.

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Golden Bears wrestlers end drought



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# folio

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## Putting students' understanding to the teamwork test

Michael Brown

**M**ention the words "group work" in a university classroom and the mood darkens.

The reality, however, is that being a team player might be the most important skill new graduates bring into the workplace.

**"Students are very interested in employability. It would be great if students came out knowing how to effectively contribute."**

Paula Marentette

Despite its importance, it's a skill that is not formally taught.

However, nowhere is teamwork being weaved into the curriculum more than in Paula Marentette's Augustana classroom.

"Employers do love team skills and are very focused on teamwork," said Marentette, a psychology professor who is in her 20th year teaching at Augustana.

"We don't want people to think they are going to graduate, go work in a cubicle, never have to talk to anybody and there

will never be conflict. This is not realistic.

"Students are very interested in employability. It would be great if students came out knowing how to effectively contribute."

With that in mind, Marentette is using a 2012-13 McCalla Professorship to develop learning objectives that outline the skills achieved through collaborative learning practices and strategies for their assessment, a sort of best practices for collaboration.

This opportunity to do research on teaching comes about six years after Marentette's teaching began trending toward team-based learning methods in the classroom.

Students have a strong resistance to group work, and have really good reasons for resisting group work, whether it be a lack of control over their own mark or dealing with a situation where someone doesn't want to contribute," she said.

Marentette began organizing every aspect of her first-year psychology classes around team-based learning. For instance, the first thing students do when class begins is take a quiz on the concepts they encountered in their assigned readings. They then break off into teams and retake the test.

"They don't always love this, by any means, but I find it to be a very effective way to



Paula Marentette

encounter, 'Do I understand?'" said Marentette. "It is unfortunate that the first time they realize they may not understand is when they are writing the midterm, which is a frequent student experience.

"For students to encounter the strengths and weaknesses of their own learning skill is very important and, frankly, doing that in your

first year is a gift. If they are able to figure out how to monitor their own learning, they'll be more effective students."

Marentette quickly started encountering skills that were effective in a group setting and others that were not.

"I wanted to find a way to help students make their teams more effective by identifying what are the effective skills that contribute to effective teamwork, and explicitly identify those traits."

Marentette says the McCalla allowed her to hire a research assistant to help develop learning objectives outlining the skills achieved through collaborative learning practices, and she is currently designing a more rigorous study to see how useful this tool can be.

"Awards like the McCalla gives researchers the opportunity to step outside of their individual research streams and engage the body of scholarship around teaching," she said. "The primary beneficiaries of this work, I hope, are the students who will be able to come out of my classroom with some achievement that can be applied more broadly than just introductory psych." ■

## University to invest in strategic priorities and areas of emerging strength

Continued from page 1

The university must make fundamental structural changes to the institution's underlying expenditures, she said, investing in strategic priorities and areas of strength that distinguish the University of Alberta provincially, nationally and internationally.

Samarasekera said the university will not implement across-the-board cuts that weaken the whole. Any future budget cuts or reallocations will be strategic and vertical in nature.

"Our students need a university that matches their 21st-century needs and aspirations. They need an educational experience and system that can be as tough, smart, flexible, creative and resilient as society will demand that they be."

In the event of a flatline budget or cuts to the Campus Alberta grant, she added, the University of Alberta will also ask the provincial government to "untie our hands" and give the university the flexibility to create new budget and institutional models.

That case will be made through the university's 2013 Comprehensive Institutional Plan, which is scheduled to be submitted to the province next month pending approval from the Board of Governors.

Samarasekera said the Government of Alberta needs to realize one size does not fit all and that as a research-intensive institution and Alberta's flagship, the U of A has unique demands and needs. Institutions within Campus Alberta can each have an important role and complement the work of others for the good of the province.

"We are strong and vibrant. The University of Alberta is in an excellent position to expand our leadership role and to influence and shape a new direction for Canada's post-secondary landscape," she said.

"We need the ability to shape this institution as we believe it should be, to make academic decisions that will ensure the strength of the University of Alberta far into the future." ■



President Indira Samarasekera answers a question during her annual State of the University address Feb. 28.

## Follow university budget implications online

Indira Samarasekera  
President and vice-chancellor

## the open door

As this edition of *Folio* goes to print, the provincial budget has not yet come down in the Alberta Legislature with information regarding funding to post-secondary institutions. At the State of the University address on Feb. 28, I committed to keeping all members of the U of A community informed about the budget and its implications for academic planning as we move forward. By the time you are reading this, information and updates are now available on a new website called [Change@UAlberta](http://Change@UAlberta). The aim of the website is to provide a venue for open and transparent information sharing throughout the upcoming process of change, as well as for frank, solutions-oriented discussion.

At the time of this writing, the Ministry of Enterprise and Advanced Education is scheduled to call me with U of A-specific details early March 8. As soon as we are able to properly assess and interpret the implications of the U of A's particular funding situation, we will communicate this to the community on [Change@UAlberta](http://Change@UAlberta). Ideally, this will occur sometime that same afternoon.

I encourage all faculty, staff and students to visit [Change@UAlberta](http://Change@UAlberta) often for updates. The University of Alberta is a strong, vibrant institution. As we move forward, I invite all of you to engage in an open discussion to ensure that the decisions we make about the future of our university are in the best interest of students, the university, and the public good. ■



# Knowledge translator a clear choice for university research award

Michael Brown

In 2008 and 2009, Gerald Robertson provided two commissioned papers to the Newfoundland Commission of Inquiry on Hormone Receptor Testing in the wake of the province's infamous breast-cancer testing scandal that shocked the province in 2005.

At a colloquium organized by the commission, a colleague described Robertson's work as exemplifying "the best of what the phrase 'knowledge translation' should mean, as he translated the results of his academic research into comprehensible and accessible information for the audience, many of whom had been seriously injured by these medical errors."

Such thoughtful praise is indicative of the thoughtful University of Alberta law professor's career, which was recently honoured with a 2013 J. Gordin Kaplan Award for Excellence in Research.

"One of the aspects of legal writing that I enjoy is to write clearly and in a manner that people will understand, particularly when issues are complex," said Robertson, the inaugural Katz Group Chair in Health Law. "In my area you are writing not only for lawyers, but often for health professionals. I find writing at a level that is understandable to health and legal professionals without being overly simplistic for either is particularly challenging."

Robertson, who was educated at the University of Edinburgh and McGill University, joined the U of A's Faculty of Law in 1983 in part because of the faculty's reputation as a leader in the field of health law, particularly the existence of the U of A's Health Law Institute, which

was founded by health law pioneer Justice Ellen Picard, now a justice of the court of appeal.

Since that time, Robertson has been actively involved in the development and activities of the institute, focusing his work on the effect of mental disability on legal rights and liabilities, and the legal liability of medical professionals.

"The institute has attracted many other scholars, including Tim Caulfield and Erin Nelson, and has led to a Katz Group Chair in Health Law as well as a Katz Group research position in health law," said Robertson, who served as the Health Law Institute's chair from 1991 to 1995. "I think it's fair to say the strength of the health law program in the faculty of law has grown over the years."

Among his many health law publications and textbooks, Robertson co-wrote, with Picard, *Legal Liability of Doctors and Hospitals in Canada*, widely regarded as the most authoritative and comprehensive treatment of medical malpractice law in Canada.

Robertson is no stranger to research accolades. In 2008, he received the Law Society of Alberta/Canadian Bar Association Distinguished Service Award for Legal Scholarship. He is also a former recipient of the U of A's McCalla Research Professorship (1994-95) and the American Society of Law & Medicine Rattigan Award. However, Robertson says life as an academic would not be complete without work in the classroom, for which he received the law faculty's Honourable Tevie H. Miller Teaching Excellence Award.

"I really enjoy teaching and find that teaching and research

## Kaplan



Gerald Robertson

complement each other," he said. "I am very thankful to have been given the opportunity to come to, and be a part of, the University of Alberta and its Faculty of Law, where there is an environment which strongly encourages and facilitates research excellence."

The Kaplan Award, named for the university's first vice-president of research, is the most prestigious U of A award for research excellence, bestowed annually on two faculty members whose achievements in research are deemed outstanding by experts in their respective fields. Robertson is joined by chemistry researcher Roderick Wasylshen, who won a Kaplan award in the category of sciences or engineering and will be featured in Folio at a later date.

This is the second time a member of the Faculty of Law has received the Kaplan Award since the award's inception in 1982, the other being Lewis Klar in 2007. ■

## Two bookstore locations to close

Folio Staff

The university is closing two financially unsuccessful bookstore locations—Rutherford Corner at Enterprise Square and the BookCellar in HUB Mall—as part of its ongoing cost-cutting initiatives.

Rutherford Corner is closing immediately. The BookCellar, which sells primarily remaindered or discontinued publications as well as textbooks for the Faculty of Law, will remain open through April and then will move within the main bookstore in the Students' Union Building on the North Campus.

"Given the efforts to reduce university spending, this is the fiscally responsible decision. Unfortunately this includes eliminating three jobs," said Frank Robinson, dean of students. The bookstores currently are administratively within the Office of the Dean of Students.

Accommodations are being made to meet the academic bookstore needs for students in Faculty of Extension courses at Enterprise Square.

There was little traffic off the street at Rutherford Corner, and the university will be able to meet the needs for U of A merchandise and academic course material through the main bookstore. The university will explore the best options for that retail space that meet the needs of the downtown community in a way that is financially sustainable for the university. ■

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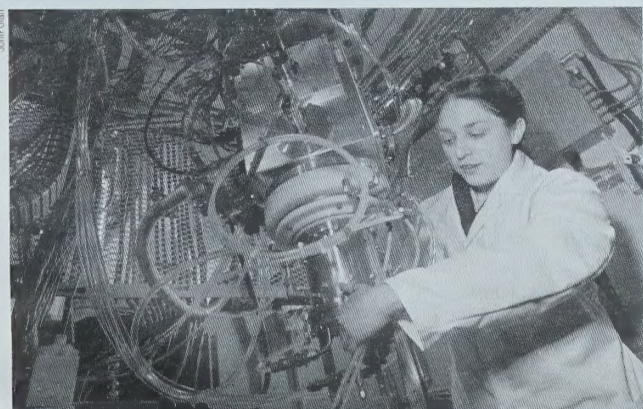
## \$7M earmarked for isotope research

Continued from page 1

"The Harper Government is working to find new ways of producing medical isotopes used in diagnosing various diseases such as cancer and heart disease," said the minister. "The project with the University of Alberta to commercialize non-reactor-based production of isotopes aims to ensure Canadians have access to the isotopes they need, while creating jobs."

The funding for McEwan's cyclotron research project—which has already achieved success in producing compatible, safe isotopes using a cyclotron—now affords them the confidence and provides for the resources necessary to conclude their research and position the product as a model for similar cyclotron centres to be built.

"This funding provides a real opportunity for the University of Alberta to demonstrate and validate a new, cost-effective and safe means of medical isotope supply that does not require the construction of a new nuclear reactor," said McEwan. "It is a true made-in-Canada solution." ■



Katie Gagnon works on the new cyclotron that will produce medical isotopes.

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# SLOWPOKE celebrates 35 years of cracking research mysteries

Michael Brown

In 2000, John Duke, director of the University of Alberta's Safe Low Power Kritical Experiment (SLOWPOKE) Nuclear Reactor Facility, ran into a colleague in the Department of Earth and Atmospheric Sciences at his wits' end trying to get accurate analyses of samples of oil field water.

What was perplexing the geologist was how to precisely characterize the brackish water, which generally accompanies oil pumped out of conventional oil wells.

The water is a waste product that is typically pumped back into the well, and its sudden increase in a producing well is often an indicator that the life of the well is coming to an end. However, it could also mean that the line into the well has been somehow damaged and water is now leaking in from another formation.

The determination of what scenario is playing out thousands of feet below the Earth's surface is of some economic importance to oil companies, yet characterizing the chemical makeup of a well's water remained a quite a challenge until Duke involved SLOWPOKE and the analytical technique of neutron activation analysis.

"By irradiating samples in the reactor, and measuring the induced radioactivity with our equipment, we were able to determine trace levels of bromine, together with the excessive amount of sodium and chlorine present in the samples, thereby characterizing the waters, essentially getting a chemical 'fingerprint' for them," said Duke, who first began using SLOWPOKE in 1980 as a graduate student in geology, just two years after the nuclear reactor was commissioned into service April 22, 1978. "Shifts in this chemical fingerprint, together with other data, can be used to assess whether a producing well is running out of oil, or whether water is leaking into the well from other formations.

"With this knowledge, oil companies have facts when it comes to making an informed decision on what to do next—either cap and

abandon the well or possibly replace the existing casing or redrill it—decisions that involve a lot of money."

Today, Duke says, this methodology has expanded to characterizing groundwater and is increasingly rec-



John Duke

ognized by many as a superior way to determine sources of environmental pollution.

"I often tell people that SLOWPOKE is like a nutcracker—researchers have the mystery or 'nut'; I ask them what's their problem and then tell them whether SLOWPOKE can be used to crack it," he said.

Embodying the essence of collaboration over the years, the SLOWPOKE facility has been used by dozens of researchers across the campus for wide-ranging purposes, including analyzing rocks and minerals for geologists; sourcing ancient pottery, obsidian or metals in anthropology; assisting chemical engineers and industry in the development of bitumen processing technologies; and producing radioactive tracers to reveal valuable information about flow blockages and structural problems inside sealed vessels; and labelling cancer-fighting drugs.

Celebrating the reactor's 35 years of discovery, the university is currently in the process of applying to renew its SLOWPOKE non-power reactor operating licence for a further 10-year period as required by the Canadian

Nuclear Safety Commission, Canada's nuclear regulator.

The university's SLOWPOKE reactor, now one of only four in Canada, is a small research reactor. Though they are similar in process to power reactors—from which Canada gets about one-seventh of its domestic electricity—scale is a different matter altogether. Whereas a medium-sized power reactor might generate 400,000 kilowatts of power (400 MW), the largest research reactor in Canada, situated at McMaster University in Hamilton, is capable of generating 3,000 kW. "SLOWPOKE is licensed to operate at 20 kW, which is appreciably less than the heat produced by the furnace of a small Alberta house," Duke says. "A lot of our work is performed at one-tenth full power, or 2 kW, the equivalent of operating a kettle and a toaster."

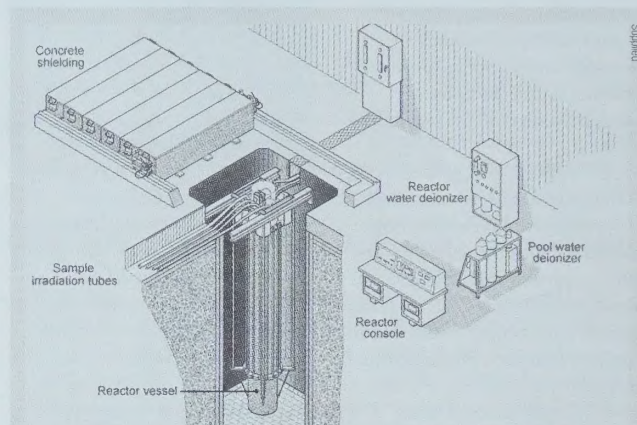
Aside from security procedures, monitoring alarms and sensors, as well as a sunken vault-like construction incorporating the three pillars of radiation protection—distance, shielding and time—SLOWPOKE's main safety feature is, in essence, its inherent ability to shut itself down.

And although the safety of any nuclear reactor is a source of discussion, Duke says the Canadian SLOWPOKE design has unequivocally been demonstrated to be inherently safe. In 2004, the U of A designated campus users of radioactive materials and ionizing radiation in their work or research as nuclear energy workers. National regulations set the maximum radioactivity occupational exposure levels for the general public as not to exceed one millisievert per year and not to exceed 50 millisieverts for nuclear energy workers, of which there are several hundred on campus. To put that into perspective, the amount of radiation people are exposed to from natural sources is one to two millisievert per year depending on where you live in Canada.

"Being designated as a nuclear energy worker, I am permitted to receive an exposure of up to 50 millisieverts in one year. However,

the highest recorded annual reading I have received in my more than 20 years of work at SLOWPOKE is less than 0.5 millisieverts—which is an indication of how safe SLOWPOKE and its use is," said Duke. "Explaining the use of

SLOWPOKE and its inherent safety are important aspects in helping the public understand and appreciate the value of SLOWPOKE's contribution to teaching, research and industry in the province and further afield." ■



U of A SLOWPOKE Reactor Facility

## Research Reactor 101

When an atom of uranium-235 absorbs a neutron, it becomes the unstable isotope uranium-236, which invariably splits, or fissions, into two new elements, and releases two or three neutrons as well as energy in the form of heat. The ongoing process of excess neutrons being captured by other atoms of uranium results in a chain reaction.

However, neutrons produced by this fission process are moving too fast to be consistently captured by a uranium atom to continue the chain reaction. To slow the neutrons down a moderator is needed, and in the case of the SLOWPOKE reactor, purified water is used for this purpose. In addition, to keep the neutrons bouncing around in the vicinity of the uranium and to promote further fission events, the reactor core is set in a beryllium reflector, which, as the name implies, reflects a significant proportion of the neutrons produced (and which would otherwise be lost from the process) back into the uranium fuel assembly to generate more fission.

Of course, something is needed to control the nuclear reaction process; in the case of SLOWPOKE it is a cadmium rod clad in an aluminum sheath. When the control rod is inserted into the reactor core—a concentric assembly of almost 300 uranium-aluminum alloy fuel pins sheathed in aluminum, each the size of a standard pencil—the cadmium essentially outcompetes the uranium by capturing neutrons, stop-

ping the fission process.

Were the cadmium control rod withdrawn and left in the "on" position, the design of the reactor is such that, due to a number of factors, it is self-limiting—that is, it cannot go out of control.

First, as the fission process continues, the heat produced causes the water moderator to heat up and expand, which increases its volume and decreases its density. This decrease in density reduces the water's functionality as a moderator, allowing many of the neutrons produced during the fission process to be lost before they can participate further in the fission process, thus limiting it.

Second, the heat produced also causes the fuel pins to expand and essentially squeeze out a fair percentage of the water from the fuel pin array. With less water available, fewer fission neutrons are moderated to the point that they can be captured by the uranium, thus limiting the capability of the reactor to sustain the fission process.

Furthermore, some of the fission event byproducts compete with the uranium fuel for neutrons, causing the reactor power level to slowly decrease, and the reactor to reach a steady state.

These factors combine to give the SLOWPOKE reactor a negative temperature coefficient of reactivity, which means as the reactor power level increases and it heats up, it shuts itself down—which is why the SLOWPOKE reactor is inherently safe.

## Interdisciplinary group of students team up to Save Stan

Bryan Alary

In the span of minutes, future nurses, health-care aides, pharmacists, respiratory technicians, doctors, paramedics and other health sciences students go from nervous anticipation to full-out action, triaging, diagnosing and treating a steady stream of patients in a busy emergency room.

A 78-year-old male with end-stage heart failure and a do-not-resuscitate order is bedridden across the room from a scared eight-year-old boy who can't breathe. "Can I get some help over here," his mom pleads over the din.

Soon the room fills. A woman in the throes of labour is wheeled in by a paramedic, followed by a patient complaining of a broken arm after a fall and a woman with a migraine so intense she vomits in the waiting area. When a man in his 40s with mussed hair,

bruises on his face and torn clothing shuffles into the ER, all hell breaks loose.

The noise, energy and tension belie the fact the entire scene is a training simulation. In fact, half the patients are made of plastic and circuitry, and the rest are playing the part. Though no lives are actually at stake, the lessons learned are as real as they come.

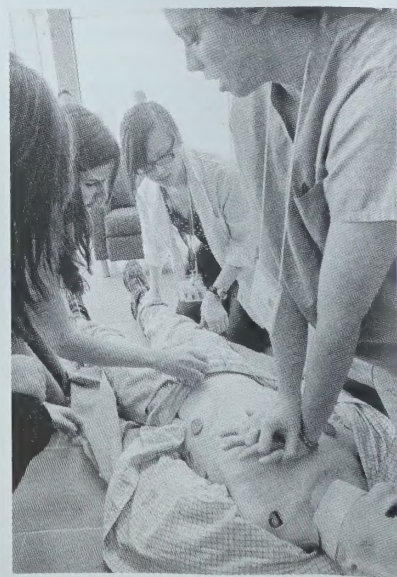
"Health care and providing health is messy, it's complex, it's really dynamic, and that's what we need to replicate for the students," said Sharla King, director of the Health Sciences Council's Health Sciences Education and Research Commons at the University of Alberta, the creator and one of the main organizers of Save Stan.

The annual event brings together students from across the health sciences at the U of A, MacEwan University, NAIT and NorQuest College. The four institutions and

Alberta Health Services have formed the Interdisciplinary Health Education Partnership, which is committed to ensuring Alberta has well-trained professionals who understand how to work as part of a larger team.

"We are doing our very best to prepare our students to provide the best care, whether they go into an emergency room, into the community, in palliative care or in the inner city," King said. "We've given them the skill sets they need, in scenarios that require collaboration across disciplines."

This year's Save Stan saw 250 students from programs such as medicine, nursing, pharmacy, rehabilitation medicine and respiratory therapy participate in nearly two dozen training scenarios in the state-of-the-art HSERC simulation lab and the Nursing Learning Resources Centre in the Edmonton Clinic Health Academy. ■



Health sciences students Save Stan at an annual training simulation.



# University lets its Pride banner fly

Bev Betkowski

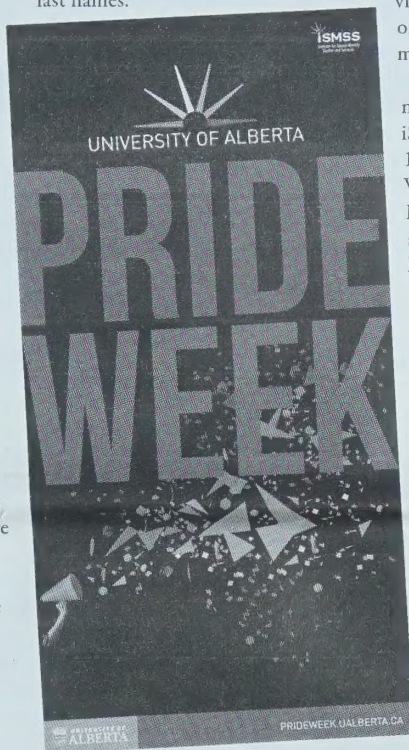
A student steps off a bus onto the University of Alberta campus, looks up and sees black banners splashed with rainbow colours, hanging brightly on the light poles.

“It’s the first thing that person sees, and suddenly they don’t feel so scared and alone.”

Alexis Hillyard

of Alberta already offers and is working towards. We have a good support system in place,” Hillyard noted.

That support includes OUTreach, a student support group for undergraduates on campus, and the Safe Spaces Initiative, built on the university’s promise that its campuses are safe spaces physically and emotionally for lesbian, gay, bisexual and transgendered faculty, students and staff. “Safe Spaces brings people into the mindset of awareness and increased attention to the issue of inclusivity,” Hillyard said. The Registrar’s Office is leading the way in its day-to-day work with students, making changes in office practices such as salutations in letters, removing the traditional ‘Ms.’ and ‘Mr.’ and going to first and last names.



“It is a small change, but it makes a huge difference.”

When the idea of a U of A Pride Week was circulated, support started to flow in from across campus, Hillyard said.

“As soon as we started telling people about Pride Week, it spread and everyone wanted to be part of it and help elevate it, because it is

so uplifting. I’m hoping the event brings a sustained feeling of excitement and pride in the University of Alberta, that people come to our campuses and say this place accepts me and my friends, and it is a safe place to call home.”

U of A Pride Week events include an assortment of discussion panels for lots of shared conversation, a colourful campus parade, athletic events such as rainbow yoga, and guest speakers. Various events are supported by several sponsors from the U of A community and from Edmonton groups.

Here are some of the events on the roster:

## Coming Out Monologues:

Pride Week kicks off March 13-14 with an artistic performance and a panel discussion by LGBT individuals centred on experiences of “coming out,” and how this major life event affected them.

## iSMSS announcement:

A major announcement about iSMSS will happen March 15 as the university’s Pride Week is proclaimed by U of A President Indira Samarasekera and Edmonton Mayor Stephen Mandel at 1 p.m. in the Timms Centre lobby.

## Pride Week parade:

The main U of A campus lights up March 18 with a noon-hour walking parade that begins at SUB and winds around campus. The parade, emblazoned with a long rainbow banner, will be led by the dean of students and will include campus ambassadors and representatives from various groups, fraternities, the Registrar’s Office and Protective Services. U of A mascots GUBA and Patches, wearing rainbow capes, will also join in the walk.

## Breaking the Silence:

This March 22 event invites guest speakers, in recognition of the National Day of Silence April 19, to speak out about the issue of silence that surrounds bullying and harassment of sexual minorities in schools.

Check the Pride Week website for a complete schedule of events. ■

# Recruiting the body’s army against cancer

Raquel Maurier

A medical researcher with the University of Alberta received \$100,000 in funding from the Canadian Cancer Society to further his work that could one day lead to cancer vaccines.

Kevin Kane, a researcher in the Department of Medical Microbiology and Immunology, has focused his research on how cancer cells attract the attention of the immune system’s killer cells. Kane wants to learn how cancer cells trigger the immune system to increase the number of killer cells that seek out and destroy cancer.

“If we could do that, we could convince the immune system to go from one soldier to an army of killer cells to attack cancer, essentially,” he says.

Technology has been developed to identify the types of genes produced by cancer cells and what those genes are expressing or outputting. Cancer cells and normal cells each express about 30,000 genes—although the gene makeup is different in each group.

Kane and his team want to use this technology to identify what cancer cells express that the immune system’s killer cells recognize.

“If we know what those triggers are, we can use them to stimulate a patient’s killer cells to increase. This would help the patient’s body better fight off the cancer naturally—without the use of chemotherapy or radiation, which have negative health effects for patients.”

A key concern in cancer is metastasis, when parts of the cancer break off and spread to other parts of the body. When cancer spreads, it is typically deadly because the cancer travels to a part of the body where it starts to interfere with vital functions.

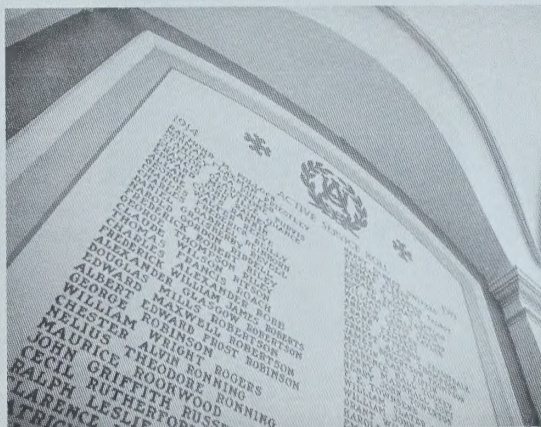
“But the nice thing about the immune system’s killer cells is that they circulate throughout the body; they are designed to do that. They can search out and hunt down the cancer wherever it is in the body and kill the cancer cells. If we can increase the army of the immune system killer cells, maybe we can spare patients’ lives.”

“Another benefit of these killer cells is that they know the difference between normal, healthy cells and cancer cells. Beefing up the body’s ability to produce these killer cells would be better for patients than chemotherapy or radiation, which kills both cancer cells and healthy cells.”

In the future, Kane hopes his group will discover that cancer genes typically produce some of the same products or proteins regardless of the type of cancer. If true, this could open the door to creating cancer vaccines, although that might be 15 years from now. ■

## Are You a Winner?

Congratulations to Chris Kish, who won a copy of the award-winning *The Grads Are Playing Tonight!* by M. Ann Hall, U of A professor Emeritus in the Faculty of Physical Education and Recreation, courtesy of The University of Alberta Press, as part of Folio’s Feb. 22 “Are You a Winner?” contest. Kish identified the location of last issue’s photo as the janitor bell to the north of the front door of the arts building. Low and behold, up for grabs this week is a Butterdome butterdish. To win it, simply identify where the object pictured is located and email your answer to folio@ualberta.ca by noon on Monday, March 18, and you will be entered into the draw.



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# Sourdough research yields sweet results

Bev Betkowski

University of Alberta researchers have found a way to replace artificial preservatives in bread, making it tastier.

After loafing around in the lab analyzing strains of mould fermented in sourdough bread, Michael Gänzle, professor and Canada Research Chair in the Department of Agricultural, Food and Nutritional Science, PhD candidate Brenna Black and collaborator Jonathan Curtis, a professor of lipids research, were able to isolate natural compounds that can help keep bread fresh without altering its flavour.

Preservatives currently added to store-bought bread are safe to eat and extend shelf life, but change the taste and have a distinctive odour, Gänzle said. "Preservatives invariably alter the flavour and smell of bread in a certain way."

Black, who led the research as part of her thesis, found the results especially tasty, as the sourdough research broke new bread—er, ground.

"The scientific community has always known that sourdough bread has a longer shelf life than conventionally leavened bread, but we weren't sure why, and this study has been able to uncover a large part of that."

The U of A research is the first to link certain compounds—hydroxy

fatty acids—to antifungal activity and to show that these compounds are formed in the production of fermented foods. "We were able to put known compounds in quite a new context," Gänzle said.

**"What we have here at the University of Alberta is special, especially in our department, where we have the microbiology and the analytical labs all together."**

Brenna Black

The findings also have the potential to be used in replacing or supplementing fungicides used in treating crop seeds and protecting crops.

The results appeared in the March 6 issue of *Applied and Environmental Microbiology*.

Black, working under the supervision of Gänzle and Curtis, did all the baking and analysis, and found the results blissful. "The sourdough bread (without preservatives) is beautiful. It smells better. It looks nice, more golden."

Collaboration was a big part of the study's recipe for success, she added. Black, who took her undergraduate degree at the U of A, started a master's program here and then accelerated into PhD studies in

AFNS, said the department's focus on interdisciplinary work was what fed her enthusiasm for food science right from her first class.

"What we have here at the University of Alberta is special, especially in our department, where we have the microbiology and the analytical labs all together. I found that set the U of A apart from other universities."

Black's work was able to link the Gänzle group's expertise in food fermentation with the Curtis group's interests in lipid analyses.

"A talented graduate student who can both grow bacteria and operate a mass spectrometer is a valuable commodity," Curtis noted.

Once she earns her doctorate, Black plans to teach at the post-secondary level, sharing her love of discovery about food and the mysteries yet to be unlocked.



Brenna Black (left) and Michael Gänzle studied sourdough and discovered a way to replace artificial preservatives in bread, making it tastier while keeping it fresh.

"Everyone's got to eat, and most people are looking for more natural products, but they don't want to sacrifice quality, so that is a challenge, and I like a challenge."

The study was funded by the Natural Sciences and Engineering

Research Council of Canada and by Ernst Böcker GmbH, a sourdough company based in Germany. The research was also supported by the Canadian Wheat Board, the Canada Research Chairs program and the NSERC Discovery program. ■

## Fashioning safer garments to suit the oil industry

Bev Betkowski

High-waisted pants are good, but in neon orange, not so much. Turns out Alberta's oilpatch workers have fashion preferences, just like everybody else, even when it comes to wearing safety gear.

Collaborating with a handful of workers in oil refineries and in the field, University of Alberta design researcher Megan Strickfaden and graduate student Sihong Yu have managed to tweak and improve safety wear that protects against on-the-job hazards like steam and hot water burns, but is also more comfortable and functional.

"Design is important," said Strickfaden, an assistant professor of design studies and material culture in the Faculty of Agricultural, Life and Environmental Sciences. "A fabric can offer protection, but the way a garment is worn can either protect or not. Having the clothing correctly cover the most vulnerable areas—torso, neck, wrists and ankles—is essential."

Yu, who is from China, was glad to tackle an out-of-the-box aspect of fashion culture. "In China it is more about ready-to-wear products, and this research is about saving lives, designed with an end-user in mind. It was a unique process of learning for me."

Stepping into Yu's design along with some of his co-workers, Steve Beggs liked the improvements she'd made. "It is a very progressive garment." As the health and safety professional for Devon Canada Corporation, one of the companies supporting the research, Beggs and his team are excited to be involved in the U of A's proactive work.

"During the wear trials, my team felt extremely comfortable and confident when working with steam, and it is amazing that as an industry we can participate in something like this. The workers really felt they were part of something meaningful."

The research stems from a larger initiative based in the Protective Clothing and Equipment Research Facility in the Department of Human Ecology. Industry had asked Strickfaden and her team to develop safety wear that not only met but also helped define Canadian standards for oil industry workers, particularly against steam and hot water burns, which, as uncommon injuries, haven't garnered much attention in safety wear. Yu's work is the latest to be unveiled.

Yu, who just finished her master's thesis on the project, gathered information from focus groups of manufacturers, safety supervisors and oil workers in the resource communities of Fort McMurray, Lac La Biche, Cold Lake and Bonnyville in Alberta, and in Turtleford, Saskatchewan, about the pros and cons of existing safety wear. Her work was funded by the Natural Sciences and Engineering Research Council of Canada, the Canadian Association of Petroleum Producers, Imperial Oil Resources Ltd., Nexen Inc., Total E & P Canada, DuPont Canada Inc., Devon Canada Corporation, Davey Textile Solutions and Apparel Solutions International.

Yu went to the drawing board and the sewing machine to design a trouser and jacket set, and a local manufacturer produced the prototype. It was then tested by four workers in the Lac La Biche area. The men wore the suits for 14 consecutive days, 12 hours at a time over their regular coveralls, and performed six particular tasks that would need high-level protection.

Designing the thick, laminated garments was a challenge: they had to be durable for both sides of 30C, fit well, be easy to move in and offer high-level protection from steam and hot water burns. A tall order, but the prototype worked well, Yu said. "The workers thought it was quite comfortable and flexible, and they felt secure and protected."

Yu's improvements included a snug interface between gloves and jacket cuffs to protect wrists, higher collars and jackets with a more tailored fit.

"They liked the garment so much they kept it on even when they didn't need to wear it, which is a nice testament to the design," Strickfaden added.

After wearing their custom-made duds on the job, the workers weighed in with a thumbs-up for a high-waisted trouser that replaced the traditional bib overalls—but a thumbs-down for the bright orange colour, which made them conspicuous among their blue-clad co-workers. ■



Sihong Yu collaborated with workers in oil refineries and in the field to improve safety wear that protects against hazards like steam and hot water burns, yet is more comfortable and functional to wear.

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# Grant brings leading-edge SIFER closer to reality

Michael Brown

One of the most pressing challenges in the 21st century is to extract natural resources but still maintain the long-term ecological and environmental integrity of ecosystems.

Unfortunately, the complexity of the relations that form the world's ecosystems—complicated further by the effects of climate change—makes it difficult to predict how ecosystems will respond to environmental change, now and in the future.

In an effort to drill down into this complexity, an interdisciplinary group of University of Alberta researchers are in the process of creating a facility that allows Canadian scientists, their industrial partners and their international collaborators to perform the studies required to meet this challenge.

Still in the early stages of development, the Stable Isotope Facility for Ecosystem Research, or SIFER, will be an internationally recognized centre in isotope biogeochemistry and restoration ecology that uses an integrated and leading-edge approach to the study of ecosystem functions.

SIFER took another step toward reality recently when the project was awarded a \$1.48-million Canada Foundation for Innovation grant from the federal government to aid in developing infrastructure. At the heart of the isotope facility will be an isotope ratio mass spectrometer, which will enable pioneering work into the precise measurements of the relevant isotope ratios of the light elements in solid, liquid and gaseous samples.

Soil biochemist Sylvie Quideau, one of nine co-principal investigators listed on the grant, said the CFI support allows for the development of an integrated approach to the study of ecosystem functioning by providing the molecular tools necessary to trace the origins and fates of individual metabolites, nutrients and chemical pollutants as they travel through soils, plants, food systems and water resources.

"This information is essential if Canada is to make significant, meaningful progress in reducing the environmental impact of energy resource development and use, particularly through development of effective ecosystem remediation and land reclamation approaches," she said.

And although the equipment used to study this pressing topic is invaluable, Quideau says the main strength of SIFER is that it will allow an interdisciplinary approach to ecosystem studies and will be able to serve many disciplines and many researchers.

In addition to her close collaborators included in the proposal, Quideau says more than 30 researchers will immediately engage in scientific collaborations



Sylvie Quideau

## Deciphering SIFER

What the university's new isotope facility will offer:

- **Isotope ratio mass spectrometers.** These instruments enable precise measurements of the relevant isotope ratios of the light elements in solid, liquid and gaseous samples.
- **Molecular structure characterization unit.** This research approach combines solid-state nuclear magnetic resonance with gas chromatography/mass spectrometry and high-performance liquid chromatography to characterize and verify the molecular structures of the biomarkers used for isotope analysis.
- **Labelling and growth chambers.** Controlled-environment chambers will be crucial for studying biogeochemical fluxes under the freeze-thaw cycles typical of prairie and boreal forest ecosystems. These chambers will be used to prepare isotope-labelled biomarkers.
- **Field station.** The new generation of field isotope analyzers (together with a soil-gas flux monitoring system) will allow the tracking of biogeochemical fluxes in natural environments.

at the facility and dozens more in the future. Furthermore, SIFER will play an important part in recruiting top talent and moulding future leaders in environmental management and stewardship in Canada, training 150 undergraduates, 130 graduate students and at least 30 post-doctoral fellows over the first five years of operation.

"Being interdisciplinary in nature, SIFER will involve students and colleagues from the Faculty of Agricultural, Life and Environmental Sciences—soil and plant science, geochemistry, hydrology and biodiversity; the Faculty of Science—physical chemistry, microbiology, botany, paleontology and aquatic ecology; and the Faculty of Engineering—water quality and bioremediation," said Quideau. "Ultimately, SIFER is good for the university because it will help build the university's strength in ecosystem research."

SIFER will provide benefits in the areas of enhancing the management of prairie and forest resources, improving the adaptability of ecosystems to climate change and natural resource development.

"The benefit of SIFER to Canada and society will be to establish the crucial base of knowledge required for adaptable and sustainable ecosystem management," she said. ■

# Industrial innovation could help humanity beat malaria

Brian Murphy

A University of Alberta researcher is working with funders and technology investors to get his malaria diagnosis equipment to equatorial Africa, where it's needed most.



Sirish Shah is working to get his malaria diagnosis equipment, based on technology developed for an oilsands producer, to equatorial Africa where it's needed most.

Sirish Shah knows how serious the need is for new technology that will bring fast and accurate diagnosis of the disease to malaria clinics in the developing world. "I grew up in Africa; I survived malaria," said Shah.

The statistics on malaria, a parasitic illness that plagues half the world's population, mark it as one of the world's most pressing humanitarian problems.

"Almost three-quarters of a million people die from malaria each year," said Shah.

Shah and his chemical and materials engineering research team at the U of A transformed an image processing technology developed for an oilsands producer to a new use—identifying and counting malaria parasites in blood samples.

Shah says malaria clinics are overwhelmed, with technicians manually examining and counting malaria parasites in hundreds of individual blood samples every day. "Miscount the number of parasites and the results can be tragic," said Shah.

"Our automated system uses digital photo technology to accurately and instantly analyze blood samples. The faster the diagnosis, the faster the treatment begins."

The U of A researchers have proven the accuracy of their system in hundreds of test cases. They have great hopes for the end-users of their technology.

"I picture a day when technicians go door to door in African communities with a portable microscope and camera mounted on top," said Shah.

"Something has to be done. Each minute a child in Africa dies of malaria." ■

# Service learning links old and new

Jacqueline Janelle

Whenever University of Alberta psychology professor Sheree Kwong See wanted to debunk stereotypes about aging for her third-year students, she kept running into the same "old" roadblock.

Being old is an abstract concept for young people, she says. Many 20-somethings can't distinguish between a 60-year-old and a 75-year-old. They rarely interact with seniors, they see their parents as old, and if they think about aging at all, they don't think that will ever happen to them.

Kwong See decided her students needed a dose of old age—while still in their third year of university. "When they are forced to see it in front of them, their eyes are opened. It makes it real," she said. So she assigned a project, developed with help from the U of A's Community

Sheree Kwong See

Service-Learning (CSL) program, to give students a chance to experience life as seniors first-hand. Students surveyed seniors to find out what kind of programming they wanted from their local recreation centre.

The change was immediate, says Kwong See. Her students were more engaged and they began to critically analyze what they were being taught. The phrase "but in my placement" cropped up over and over in class discussions. Students had tested the ideas covered in class and realized that theory doesn't always work in practice.

Moving student learning into the workplace has always intrigued Tara Fenwick. She completed her PhD in educational policy studies at the U of A, and is now chair in professional education at the University of Stirling in Scotland. "People learn all the time, through all kinds of experiences in family, community, classrooms and recreation, but work is a particular preoccupation in our economy-obsessed society," she says.

For Fenwick, who delivered the Department of Human Ecology's Empey Lecture March 6 as part of the kickoff to the university's year-round Festival of Teaching, giving students the opportunity to see how they fit into the working world is valuable but not always easy. It requires teachers to rethink their role and re-examine "where and how to intervene—and most importantly, for what purpose."

Kwong See agrees. She was initially concerned about how she could link her students' experiences back to the course material, but found that the students discovered connections on their own. Instead, her role was to help them make sense of what they had learned. "CSL is a leap of faith," she says, "but it's a good one."

More than 50 U of A teachers have incorporated some aspect of CSL into their courses. Fenwick says this is a boon for all involved, noting that community partners benefit from "an inquiring, attentive learner supported by the vast resources of a university," while students and teachers gain an enlivened classroom. ■



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## Giving a voice to kids with Down syndrome

Bryan Alary

Researchers are helping children with Down syndrome who stutter find their voice and speak with ease.

Stuttering is a common problem that affects almost half of all children with Down syndrome, yet despite the scope of the problem, little research exists about preferred treatment options—or even whether to treat at all. Researchers with the University of Alberta Institute for Stuttering Treatment and Research (ISTAR) point to a new case study that shows fluency shaping can indeed improve a child's speech.

"People who stutter, whether they have a developmental delay or not, can do very well with treatment," said study co-author Jessica Harasym, a speech-language pathologist and Elks clinician with ISTAR in the Faculty of Rehabilitation Medicine. "There is no difference between the way the child in our case study responded compared with other children and families we've worked with who don't have Down syndrome."

Co-author Marilyn Langevin, ISTAR's director of research, said there is little consensus in the speech-language pathology community about treating stuttering for kids with co-existing disorders like Down syndrome. Their descriptive case study directly challenges the notion that children with Down syndrome should not be taught fluency skills for fear that failure could lead to frustration and damaged self-esteem.

"The difference in treating a child with Down syndrome might be using more simplified terms and slight modifications in how skills are explained, more modelling of skills—the more you show, the better," Langevin says.

In the study, Harasym and Langevin worked with an eight-year-old, Sarah, whose stuttering had affected her scholastic performance and ability to speak with friends and teachers at school. Four months of treatment, including the practice of prolongation—speaking at an exaggeratedly slow rate—plus breathing techniques and voice management skills inside the clinic and at home, helped Sarah improve her fluency by 98.6 per cent.



Marilyn Langevin (left) and Jessica Harasym

"This is front-line clinical research and it is making a difference in people's lives," Langevin says, explaining that stuttering can lead to social isolation, teasing and bullying. She says treatment helped Sarah find a way to get her words out.

"When there is less interference with communication, a child like Sarah can function that much better. She's functioning better with friends, and family, and she's able to reach her potential in a more robust way."

The research was funded by an anonymous donor and a grant from the Alberta and National Elks and Royal Purple. It was published in the December 2012 issue of the *Journal of Fluency Disorders*. ■

## Researchers receive \$495,000 to investigate preservatives

Mary McIntyre

Researchers from a variety of faculties at the University of Alberta have come together with a common goal. The team will search for a way to use a type of bacteria found in yogurt to replace traditional chemical food preservatives. Lactic acid bacteria produce non-toxic, naturally occurring peptides that very effectively kill pathogenic bacteria like listeria.

"The reason we're interested in lactic acid bacteria is that the peptides produced by bacteria are harmless, with no toxicity whatsoever," said Kamaljit Kaur, associate professor in the Faculty of Pharmacy and Pharmaceutical Sciences.

Kaur has worked with peptides for the past 10 years. For this project, she joined forces with David Wishart, professor of computing and biological sciences in the Faculty of Science and research officer with the National Institute for Nanotechnology, and Lynn McMullen, professor in the Department of Agricultural, Food and Nutritional Science.

"The role for all three of us is equally important. We are a robust team," said Kaur.

The team also has CanBioCin Inc. on board as their industrial collaborator. The U of A spinoff company specializes in developing innovative and socially beneficial products based on lactic acid bacteria.

Lactic acid bacteria produce only a very small amount of peptides. "Our goal is to increase the amount of peptides that lactic acid bacteria produce naturally, as well as make the peptides broad-spectrum," said Kaur. "If successful, it could replace chemical preservatives and the use of conventional antibiotics for animals."

Kaur is thrilled to have Wishart and McMullen as co-principal investigators. "I appreciate their confidence in me. I'm fortunate and honoured to work with them."

The team received \$495,000 from the Food Safety Research and Innovation Program, supported by Alberta Innovates Bio Solutions and the Alberta Livestock and Meat Agency.

This is just one of several projects in which Kaur uses the peptides from lactic acid bacteria. In 2011, she received funding from the Natural Sciences and Engineering Research Council of Canada for a closely related project, with the goal of creating a simple portable device to diagnose the presence of listeria, E. coli and salmonella.

If Kaur and her co-principal investigators, engineering professors Thomas Thundat and Sushanta Mitra, are successful, the device would put Canada at the forefront of quickly detecting contaminated food. ■

### UNIVERSITY OF ALBERTA UNIVERSITY GOVERNANCE

#### GFC COMMITTEES: ACADEMIC & SUPPORT STAFF NEEDED

The terms of office for a number of academic and support staff members serving on General Faculties Council (GFC) Standing Committees, Appeal Boards and committees to which GFC elects members will expire on June 30, 2013. The GFC Nominating Committee (NC) is seeking academic and support staff members to fill the following vacancies for terms normally three (3) years in length, beginning July 1, 2013.

Committee	Staff Vacancies	Meeting Times (normally monthly)
<b>ACADEMIC PLANNING COMMITTEE (APC):</b> GFC's senior committee dealing with academic, financial and planning issues.	THREE academic staff members (Category A1.0) all of whom must sit on GFC	2:00 pm/twice monthly, Alternating Wednesdays
<b>CAMPUS LAW REVIEW COMMITTEE (CLRC):</b> Reviews Code of Student Behaviour, Code of Applicant Behaviour and Residence Community Standards.	ONE academic staff member (Category A1.0) who is a former Associate Dean, Discipline Officer (DO) or University Appeals Board Chair TWO staff members (Categories A1.0, A2.0 or B1.0)	9:30 am/4 <sup>th</sup> Thursdays
<b>COMMITTEE ON THE LEARNING ENVIRONMENT (CLE):</b> Promotes an optimal learning environment in alignment with guiding documents of the University of Alberta.	THREE academic staff representatives (Category A1.0) at least one of whom must sit on GFC ONE academic staff member (is an Associate Dean or Associate Chair, Teaching and Learning, or equivalent)	2:00 pm/1 <sup>st</sup> Wednesday
<b>UNDERGRADUATE AWARDS AND SCHOLARSHIP COMMITTEE (UASC):</b> Approves new awards for undergraduate students including selection and eligibility criteria.	THREE academic staff members (Category A1.1, A1.5 or A1.6)	2:00 pm/2 <sup>nd</sup> Tuesday
<b>GFC ACADEMIC APPEALS COMMITTEE (AAC) / UNIVERSITY APPEAL BOARD (UAB):</b> AAC hears/decides student appeals regarding academic standing. UAB hears/decides student appeals and applicant appeals regarding disciplinary decisions made under the Code of Student Behaviour or Code of Applicant Behaviour.	<b>AAC:</b> TWO academic staff member (Categories A1.1, A1.5 or A1.6 or on post-retirement contract) on the Panel of Chairs TWO faculty members (Categories A1.1, A1.5 or A1.6 or on post-retirement contract) on the Panel of Faculty members <b>UAB:</b> FOUR academic staff members for the Panel of Chairs	Normally 4 to 5 hearings per year, scheduled as needed Mon to Thurs; normally start anytime between 3:00 pm-5:30 pm, and typically last 3-5 hours.
<b>OTHER Committee/Body to Which GFC Elects Members</b>		
<b>DEPARTMENT CHAIR SELECTION COMMITTEE:</b> Members are chosen in rotation from a panel of 15 to serve on Department Chair selection committees.	SIX academic staff members (from Categories A1.1, A1.5 or A1.6)	Constituted as Department Chair selection processes are initiated
<b>Distinguished University Professorships Advisory Selection Committee</b>	TWO academic staff members (from Categories A1.1 or A1.5)	Constituted as selection processes are initiated.
<b>Extension Faculty Council:</b> Represents University interests on Extension's Faculty Council.	ONE academic staff member (Category A1.0) who is not a member of the Faculty of Extension)	Average of 6 times a year
<b>University of Alberta Museums Policy and Planning Committee:</b> Advise University administration and governance bodies on matters relating to the University of Alberta Museums	TWO staff members (Categories A1.0 or B1.0)	4 times a year
<b>SENATE:</b> Links with the community and is an independent advisory body of community leaders.	TWO academic staff member (Categories A1.1, A1.5 or A1.6); MUST be a member of GFC	4 times a year

ALL FACULTY & STAFF interested in becoming an active member in the collegial governance system at the University of Alberta by serving on a General Faculties Council (GFC) Standing Committee for 2013-2014 are invited to apply ON-LINE now.

ON-LINE applications are currently being accepted. Faculty/Staff applications must be submitted by **Monday, March 28, 2013 at 4:30 p.m.** Please visit the University Governance website at [www.governance.ualberta.ca](http://www.governance.ualberta.ca) for an application form and more details.

**MORE INFO:** Comprehensive details on all GFC/GFC Standing Committees' terms of references, memberships, and schedules are available on-line at the University Governance website. If you have questions or would like more information please contact: Ms. Ann Hodgson, Coordinator, GFC Nominating Committee (NC), at 780-492-1938, or by e-mail: [ann.hodgson@ualberta.ca](mailto:ann.hodgson@ualberta.ca). Interested applicants are welcome to come by and visit University Governance in Room 3-04 South Academic Building (SAB).



# Defining the new normal in aging

Bryan Alary

Diana McIntyre approaches her 80th birthday later this year with the same energy and zest for life of friends decades her junior. Aside from back surgery years ago, she's never been sick and, through a busy volunteer schedule, never seems to slow down.

“What's normal for a 45-year-old? What's normal for an 80-year-old? Those are really irrelevant terms as far as I'm concerned.”

Diana McIntyre

McIntyre's good health feels normal—at least to her—although she recognizes not all seniors are so fortunate. But when it comes to terms like “normal,” “healthy” or “successful” aging, she shakes her head.

“I don't know what would be considered normal aging,” said McIntyre, past president of the Seniors Association of Greater Edmonton. “What's normal for a 45-year-old? What's normal for an 80-year-old? Those

are really irrelevant terms as far as I'm concerned. My own philosophy is I would like to do as much as I can, for as long as I can, as well as I can.”

Hannah O'Rourke, a PhD student and Vanier scholar in the Faculty of Nursing at the University of Alberta, says terms such as normal or healthy aging are commonly used by health-care professionals to describe or influence how seniors should age. Often they emphasize personal lifestyle choices in staying healthy, such as eating well, staying active and not smoking.

But those terms can fall short of the experiences of most older Canadians, and how they're used affects how a society views older generations—especially seniors living with chronic diseases such as cancer, diabetes and heart disease, says O'Rourke.

“Normal aging is not something we can easily define,” she says. “There are many older adults with chronic disease who report they still enjoy life. When aging is just defined as ‘healthy’ and ‘devoid of disease,’ it doesn't leave a place for what to do with all of these older adults who are still aging with chronic illnesses.”

“Cures for chronic illnesses are not always around the corner, and health-care teams have patients to care for now. We need to find ways



Hannah O'Rourke found that terms such as “successful” or “normal” aging can affect how society views older generations, especially seniors living with chronic diseases.

to support older adults with chronic disease to live well according to their own definitions of health and normality.”

O'Rourke, a registered nurse whose research focuses on quality of life for people with dementia, points out that many Canadian seniors are well enough to live at home, yet 80 per cent have some form of chronic disease. With that large a majority, putting the onus on individual choices to age successfully sends the wrong message.

“The implication is that if you have a chronic illness as an older adult, you've somehow failed in this goal of aging without

chronic disease, which is perhaps not that realistic a goal.”

O'Rourke points out that an aging society can also be viewed as a success story, because it means the majority of us are living well into our older years.

“Just because something requires resources doesn't necessarily mean it's a huge problem.”

O'Rourke's research was funded by Knowledge Translation Canada, Alberta Innovates – Health Solutions and the Canadian Institutes of Health Research. The findings will be published in the March issue of *Nursing Inquiry*. ■

## Researchers read history in the margins

Michael Davies-Venn

The margins of books that were read centuries ago could explain why we spend less time reading a book today than people did in the 18th century, according to two University of Alberta researchers.

As part of their research for their recently published book, *The Spacious Margin: Eighteenth-Century Printed Books and the Traces of Their Readers*, English and film studies professors Sylvia Brown and John Considine studied annotations scribbled in the margins of books owned by famous people—such as John Wesley, co-founder of the Methodist Church—as well as by ordinary people the pair say are unknown to history.

“One can guess about the sort of access that a woman in the English countryside in the early 18th century might have to erotic poetry by Latin poets,” he says. “But we have a copy of *Art of Love*, inscribed by a woman who lived in the north of England. And from this, we can name an English woman, Mary Vipond, who was reading this erotic poetry, and date her. This is a real person, not a generality. These books bear witness to human lives in ways that a lot of our books now don't and won't.”

“They would have, from the beginning, understood the book as an embodied thing, that its material life was unique.”

Sylvia Brown

For their study, Considine and Brown pored over more than 60 tomes from the U of A's Bruce Peel Special Collections, a rare collection of books that can't be found anywhere else in the world. But centuries on, we may not have such a record, says Brown.

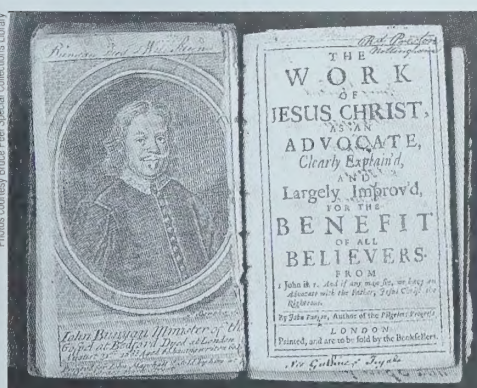
“When there were fewer books and people kept them, we had an archive of the past. We're in danger of leaving no archive of our present; our preservation is very fragile. Will people 300 years from now start to think about our specific stories? They might have access to them, but the stories may also disappear because there isn't a kind of consciousness of how fragile this information is and the need to preserve it,” she says.

“There's a danger now in resources like Google Books to feel that a book is really its disembodied contents—that if you have the electronic text of the book, that's the book,” says Brown. “We can actually make this mistake because of the mass proliferation of books.”

In times past, she says, owning a book meant buying the pages from a bookseller and then ordering a custom binding. “They would have, from the beginning, understood the book as an embodied thing, that its material life was unique,” Brown says.

That disconnect in perception of the materiality of books is creating a gap in the continuum of our history as recorded in the margins of 18th-century books, says Considine.

“There's a very basic human interest in making connections with people who are unlike us. Looking at old books is a way of looking at that connection with someone very different from us, who lived in a different country and century.” ■



Annotations in the margins of 18th-century books reveal rich details of history and offer clues about how technology has changed the way we read, say two researchers who recently published their own book on the subject.

Brown says that in the 17th century, people would typically own only a few books, such as a Bible or a collection of sermons. Those books were valued and read in very concentrated ways—and heavily annotated, she notes.

“But in the 18th century, there were more printed works and more opportunities to buy print. More people owned more books, so intensive reading was replaced by something we've taken to an extreme today, which is the very casual skimming of books,” Brown says. “And so we see far less annotation in the 18th century.”

But the abundance of books did more than spur an evolution of reading habits. Readers who annotated their books provided rich details of history often missed in the general accounts of the past, says Considine.

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## Call for Consultation

By the Selection Advisory Committee for the Vice-Provost and Chair, Health Sciences Council

The process for selecting the Vice-Provost and Chair of the Health Sciences Council has begun, and a Selection Advisory Committee has been established.

At this point, the Selection Advisory Committee asks for your opinion on the leadership needs of the Health Sciences Council in the years ahead, and any other key issues. You are urged to contact members of the Committee, or write to me as Committee Chair, to express your views on the priorities of the Council, its current issues and future direction. All feedback may be shared with the Selection Advisory Committee. In order to facilitate the Committee's work, please submit your comments by **Friday, April 5, 2013**.

In addition, individuals who wish to stand as a candidate are invited to apply. Individuals may also nominate others who they feel would be suitable candidates.

The selection of a Vice-Provost and Chair, Health Sciences Council, is vital to the academic success of the University of Alberta. I therefore ask you to take the time, even at this busy point in the academic year, to give some thought to the future of the Council. Your views are important to us. Thank you for your assistance.

Please forward your comments to the address/e-mail below. You may also share your views with any member of the Committee (contact information at right).

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Chair, Selection Advisory Committee  
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### SELECTION ADVISORY COMMITTEE MEMBERSHIP:

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Sharla King  
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# news [shorts]

folio presents a sample of some of the stories that recently appeared on the [ualberta.ca/news](http://ualberta.ca/news) page. To read more, go to [www.news.ualberta.ca](http://www.news.ualberta.ca).

## Remembering Alan DeSilva: 1982–2013

The University of Alberta community joins Augustana Campus in mourning the sudden loss of Alan DeSilva, a popular biology sessional known for his gentle sense of humour and his passion to teach. He was 30.

A devoted family man first, DeSilva was also a talented educator, entrepreneur, biologist, scientist and musician.

"Although it's been hard, what has helped is knowing the amazing influence he had on this world," wrote Alan's wife Renee in a note to Augustana. "Alan always told me how he loved the teaching environment there and how working at Augustana inspired him to be a better professor."

"Thank you for helping him live out his passion for teaching."

## Legion gives gift to support rehabilitation research

The Royal Canadian Legion Alberta-NWT Command donated \$267,000 to the Faculty of Rehabilitation Medicine's Canadian Military and Veterans' Rehabilitation Research program, a gift raised at the community level through the Poppy Fund.

"I find this very meaningful, as the impact of military rehabilitation research extends beyond soldiers and veterans. The research discoveries and implications will also translate to benefit the community," said Bob Haennel, acting dean of rehabilitation medicine. "We recognize that this gift is from the community, for the community. It is very special to us."

Canada's first research chair dedicated specifically to the rehabilitation of injured soldiers and veterans was established in May 2011 by the Faculty of Rehabilitation Medicine, with foundational gifts from True Patriot Love Foundation and Harry and Muriel Hole. The chair is positioned to provide international leadership in finding and communicating solutions to the medical and rehabilitation needs of Canada's soldiers and veterans.

"The University of Alberta recognized two years ago that academia should do more for soldiers," said Ibolja Cernak, the holder of the Chair in Military and Veterans' Clinical Rehabilitation, in her presentation to visitors from the Royal Canadian Legion this month. "This research is science for soldiers' sake, not science for science's sake."

## Rhodes Scholar wins Canadian award

Megan Engel, who received a Rhodes Scholarship in November, has now won the \$10,000 Andre Hamer prize for outstanding postgraduate work in sciences from the Natural Sciences and Engineering Research Council of Canada.

This fall, Engel takes up her Rhodes Scholarship at the University of Oxford, where she will pursue her interests in natural sciences.

"The U of A is truly my home," said Engel. "Amongst the faculty I encountered some of the most brilliant, pedagogically gifted, and humble people I have known, and these mentors have been instrumental in my success."

"Nothing would give me greater fulfilment than to be able to return as a professor to the campus that has given me so much, in order to give something back to it."

## Shenton named ACAC north's coach of the year

Augustana Vikings women's basketball coach Leanne Shenton was named the Alberta Colleges Athletic Conference's north division coach of the year.

Shenton, an alumna of Augustana, led the women's Vikings to a first-place 20-1 record and a second-place national ranking. The fairy-tale season ended March 2 with a 83-65 loss to the Olds Broncos in the ACAC final held in Camrose.

## Internship opportunities in Germany expanded

Leading institutions in Germany, such as the Helmholtz Association of German Research Centres, have been collaborating closely with the U of A as part of the university's international engagement strategy to expand internship programs that will deepen students' academic experience.

"The internships will open opportunities for our students to undertake experiential learning directly connected to their areas of study," said Britta Baron, vice-provost and associate vice-president (international). "Of course, we're providing a first-class academic experience at the U of A, but beyond that, students today need more than just a degree. They need skills and qualifications that are not acquired in the classroom."

Giving students a chance to gain those skills is being made possible through U of A International's Education Abroad program. The program's Berlin-based internship liaison, Ira Rückert, is helping to deliver on the university's commitment to provide an international experience for students.

Rückert says there are several internships in the areas of IT, sustainability and renewable energy, medicine, engineering and the arts, as well as with some of Germany's top economic, social and political think tanks and the Bundestag—the German parliament.

"I think this is the first time a student from the U of A has gone to the Bundestag," she said. "I've met with him and he's very happy because it's a big opportunity for him."

Rückert says she will work directly with students to find internship positions that interest them. "Canada is a country people like, so whenever we mention Canada, the first thing we hear is, 'Oh, yes, we would love to have your students because it will enrich our company's life.'"

# Engineering students charged up over EcoCar

Richard Cairney

The University of Alberta EcoCar Team has unveiled its 2013 car, taking on a challenge that even the automotive industry finds daunting. The students designed and built the single-seat hydrogen cell car and will once again compete against teams from around the world this spring.

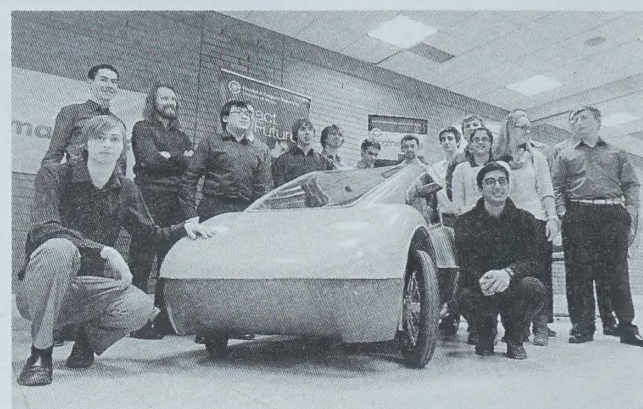
"It was just a great learning experience because all of the mistakes we could make, we made."

Matt Sponiar

"They've gone from nothing, from an idea, to recruiting a team and learning to build a car from scratch," said mechanical engineering professor Marc Secanell, who supervises the group. Secanell says that major car manufacturers Nissan, Daimler, Ford and Hyundai are actually collaborating on commercial production of zero-emission cars.

"In a way, these students are among the pioneers," Secanell added. "These big car companies are working together but these guys have done it all themselves."

The team was established in 2010 with mechanical engineering student Matt Sponiar driving the campaign to establish a new student group focused on sustainable automotive design and engineering. Last year, the group made its debut appearance at the Shell Eco-marathon in Houston, Texas, which hosts teams from more than 150 universities and high schools in North and South America. After several setbacks in completing the 10-kilometre competition course last year, the team took



The EcoCar team unveiled its 2013 vehicle Feb. 28. The team is going to compete at the Shell Eco-marathon in Houston, Texas, in April.

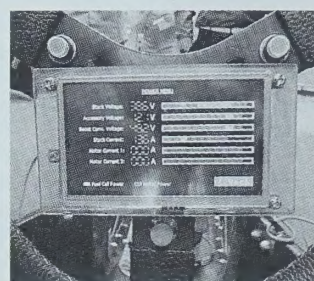
second place in the Urban Concept Vehicle category.

"It was just a great learning experience because all of the mistakes we could make, we made," Sponiar said, during a special event to show off the 2013 car and thank the team's supporters.

This year's vehicle has an upper chassis made of BioFiber and a lower chassis made from a cellulose and Kevlar mix. The vehicle is powered by a hydrogen fuel cell.

"It's coming together well," Sponiar said. "We're really excited."

Major sponsors for the team include the Faculty of Engineering, Shell, Motive (design company), Alberta Innovates – Technology



The EcoCar dashboard goes high tech.

Futures, Bullfrog Power, Alberta Council of Technologies and Rohit Communities.

The team competes in Houston April 4-7. ■

# laurels

The Residence Services' Marketing and Recruitment unit won two silver awards at the Higher Ed Marketing's 28th Annual Education Advertising Awards.

Residence Services' *Home @ U* campaign won silvers in both the Outdoor and Poster marketing categories for institutions with more than 20,000 students. Over 3,000 entries were received for these awards from all over North America.

# Golden Bears find championship form, Pandas teams grab silvers

Folio Staff

It's been more than four decades, but the University of Alberta Golden Bears wrestling team finally returned to championship form March 2 in London, Ont.

The Bears, who had claimed three consecutive championships from 1970 to 1972, tallied 52 points to win a thrilling race over Brock (51) and Western (49).

Not to be outdone, the men's hockey team booked their spot in the CIS championships by claiming their 50th Canada West title with a 2-1 series win at Clare Drake Arena over the University of Saskatchewan Huskies, who will play host to the University Cup championship March 14-17.

Meanwhile, the reigning CIS wrestling champion Pandas had to settle for silver at this year's finals. It is their third consecutive top-two finish at the event.

The Pandas volleyball team earned their second consecutive CIS silver medal after losing for a second year to the University of British Columbia Thunderbirds, who have now won the national championships six consecutive times.

Fourth-year head coach Owen Dawkins was named the CIS men's coach of the year, his second national

coach of the year honour in four years. He won women's coach of the year in 2011 when the Pandas won the CIS championship. ■



Golden Bears grapplers win national wrestling title for first time in more than 40 years.



# Searchlight shines on talented arts student

Michael Brown

As far back as Josh Sahunta can remember, he has dreamt of a music career that is out of this world.

The first-year arts student's stellar dream is a little closer to liftoff, thanks to the strong showing of his song *Supernova* through two rounds of the CBC Radio competition Searchlight: The Hunt for Canada's Best New Artist.

"I entered the CBC Music competition last minute as I had only found out about it half an hour before the submission deadline," said Sahunta, who wrote, composed and sang *Supernova*, which features vocals by local high-school singing sensation Kayla Patrick. "I have had large spikes in my YouTube video views as well as a significant boost on my Facebook fan page since the entry of my song."

"All of this is so new to me, which makes the experience so incredibly exciting."

Sahunta says he intended *Supernova* to be a love-lost ballad that anyone who ever suffered a broken heart could relate to, tempered by a catchy melody that makes the song a bit of a toe-tapper. "It's about a relationship that comes to an end without any prior warning at all. It deals with the shock and

heartbreak associated with a sudden loss of someone dear to you."

Sahunta also shot a video for *Supernova*, opting for a number of U of A landscapes as the backdrop for much of it.

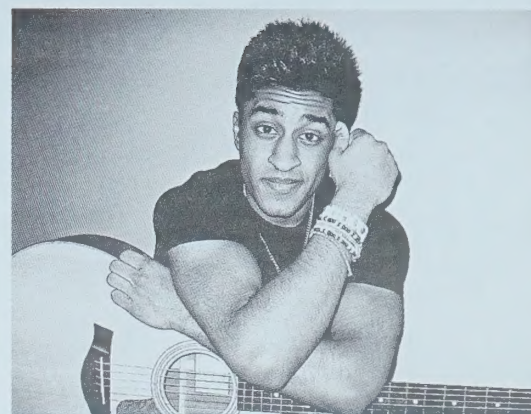
"Every kind of location was at our disposal—perfectly lit indoor scenes, the path in front of the CCIS building, which was conveniently lined with lit lampposts, and the empty parking lot—it all gets the creative juices going crazy."

Sahunta, who is eyeing a career in criminal psychology and forensics, says making it in the music industry would allow him the luxury of doing the two things he loves most—travelling and performing music. But until that musical dream arrives, the psychology major is looking forward to taking advantage of all the opportunities the U of A is offering.

"I decided to come to the U of A because of the opportunities it provides to its students," said Sahunta. "No matter who you are, it has something for you."

For instance, Sahunta says he was never one for joining clubs, but that quickly changed when he arrived on campus in September.

"Who wouldn't want to join a sword-fighting club? It's just such a welcoming place. Though it is large, once you get



Josh Sahunta is in the running to become Canada's Best New Artist in a CBC Radio competition.

acquainted, the place becomes like a second home. I hope to have a truly well-rounded educational experience that provides me with skills that allow me to help people to the best of my abilities."

Winners of the regional competition will be entered into the national competition, with the winner receiving \$20,000 in Yamaha music equipment. ■

## talks & events

Talks & Events listings do not accept submissions via fax, mail, email or phone. Please enter events you'd like to appear in folio and at [www.news.ualberta.ca/events](http://www.news.ualberta.ca/events). A more comprehensive list of events is available online at [www.events.ualberta.ca](http://www.events.ualberta.ca). Deadline: noon one week prior to publication. Entries will be edited for style and length.

### MARCH 19 & 20

**Sustaining Inspiration...** Developing Skill Workshop. The Arts-based Research Studio's artist-in-residence Markus Alexander, PhD candidate, director and choreographer, will be conducting a series of open workshops. March 19, 7 to 9:30 p.m. and March 20, 1–3:30 p.m. 4-104 Education North.

### UNTIL MARCH 23

**the space between us: Alysha Creighton.** This exhibition is the final visual presentation for the degree of master of fine arts in drawing and inter-media. FAB Gallery.

**Field Notes: Lisa Matthias.** This exhibition is the final visual presentation for the degree of master of fine arts in printmaking. FAB Gallery.

### MARCH 9

**Jamie Syer presents a piano master class.** Participants are the bachelor of music piano majors from the studio of Milton Schlosser. 9:30–11:30 a.m. Augustana Chapel, Camrose.

### MARCH 10

**Camrose & District Community Band in Concert.** The band comprises music enthusiasts and musicians from the Camrose area, as well as a significant number of Augustana students. 2–3 p.m. Augustana Chapel, Camrose.

### MARCH 11

**Calendar Town Hall.** The Office of the Registrar is pleased to host a Calendar Town Hall (information session) for faculty and department contacts involved in making changes to and reviewing drafts for the University Calendar. 10 a.m.–noon. L1-490 ECHA. RSVP to [lynelle.watt@ualberta.ca](mailto:lynelle.watt@ualberta.ca).

**Exhibition of the work of David Baine.** Faculty of Education researcher David Baine will be showcasing his photography. All visitors will be entered into a draw to win a Baine original. Noon–9 p.m. Faculty Club.

**Noon Music.** Elizabeth Turnbull Voice Class Concert. Noon–1 p.m.

### MARCH 12, 14, 18–22 & 25

**Moodle Training, TLS Concepts, Peer Assessment and Course Design.** The Centre for Teaching and Learning hosts

a number of hands-on sessions to introduce Moodle features and course development to instructors. For more information, go to [ctl.ualberta.ca](http://ctl.ualberta.ca).

### MARCH 12, 13 & 15

**2012-13 Broadus Lectures.** Julie Rak, professor in the Department of English and Film Studies, will give a series of talks based on her recent research into the recent memoir boom that has flooded the market. Each day, 3:30–5 p.m. HC L-1.

### MARCH 13 & 20

**Walking With Our Sisters.** Beading sessions every Wednesday through April 24. 11–1 p.m. North Power Plant (Aboriginal Student Council Space).

### MARCH 13

**Educated Luncheon – Fact or Fiction: Canada & the U.S.A. = Friendly Foes.** The Honourable Anne McLellan, academic director and distinguished scholar in residence with the U of A's Alberta Institute for American Studies, will share her views on Canada's relationship with the U.S. and the challenges to creating a more united and productive relationship. Cost: \$10 (includes lunch). Noon–1 p.m. Enterprise Square. Register at [alumni.ualberta.ca](http://alumni.ualberta.ca).

**Hear's to Your Health Concert.** Gil Sharon, violin; Patricia Tao, piano. 5–7 p.m. Walter Mackenzie Health Sciences Centre, foyer to Bernard Snell Auditorium.

**Staging Diversity 2013 Artist-in-Residence Workshop Series.** Artist-in-residence for Winter 2013 and MFA candidate Nikki Shaffeeullah is a theatre facilitator who has led arts-based community projects across Canada and internationally. Staging Diversity, a participatory, theatre-based research project, employs a variety of theatre-based methodologies to explore social location, with a focus on ancestral histories and cross-cultural myths, folk tales and legends. 12:30–2 p.m. 4-104 Education North.

### MARCH 14

**D.B. Robinson Speaker Series 2012-13.** Susan McCahan, professor of mechanical engineering, vice-dean (undergraduate) of the Faculty of Engineering at the University of

Toronto and 3M Award winner, will be on hand to give a talk titled Designing a Compelling Learning Experience. McCahan will explore some of the basic principles of designing a compelling learning experience, and discuss examples of the diverse ways in which university education is being reinvented. 3–4:30 p.m. 1-001 ETL.

**Brain Awareness Week 2013.** Anthony Cashmore, professor at the University of Pennsylvania, will be on hand to give a talk entitled Is Free Will an Illusion? Ethical and Legal Implications. 3:30–5:30 p.m. 1-140 CCIS.

### MARCH 14–16

**Augustana Winter Drama Production.** Shoot\*Get Treasure\*Repeat is an epic cycle of short plays written by Mark Ravenhill and directed by Kevin Sutley. Tickets (available only at the door): \$15 (general admission); \$5 (students). 7:30–9:30 p.m. Augustana Theatre Centre.

### MARCH 15

**CIHR's New Open Suite of Programs and Associated Peer Review Town Hall.** Jane Aubin, CIHR chief scientific officer and vice-president of research and knowledge translation, will discuss how CIHR is engaging the research community in the transition to the new program design and peer review processes. 9–11 p.m. 2-190 ECHA. To register go to [rsoregistration.ualberta.ca](http://rsoregistration.ualberta.ca).

### MARCH 17

**And the Band Played On.** Mannskor: Augustana Men's Choir and some very special guests will examine Augustana's Resilience theme in a spring concert featuring fine music that has stood the test of time. Tickets (available only at the door): \$18 (adults); \$14 (students/seniors); \$45 (family). 7:30–9 p.m. Augustana Chapel, Camrose.

### MARCH 18–29

**Traces Engineering Art Exhibit.** Traces is the second annual art exhibit showcasing the artistic endeavours of engineering students, faculty and professionals. NRE 2nd level, ETL/ECERF Atrium.

### MARCH 18

**Noon Music.** Early Music Concert. Noon–1 p.m. Convocation Hall.

### MARCH 19

**Conflict and Bullying in the Learning Environment.** In collaboration with the Office of Safe Disclosure & Human Rights and Organizational Learning & Effectiveness, CTL is pleased to present a new series of workshops that will enable participants to better understand inclusiveness in learning environments. 10–11:30 a.m. 236/238 TELUS Centre. For more information, go to [ctl.ualberta.ca](http://ctl.ualberta.ca).

### MARCH 21

**The Legal Forum Centenary Speakers Series 2012-13.** Craig Jones, law professor at Thompson Rivers University, will give a talk entitled Trying Polygamy: Social Harm and Individual Freedom Under the Charter. Noon–1 p.m. 193 Law Centre.

### Alberta 2013 Budget Post-Mortem.

After the provincial government presents Budget 2013, Derek Fildebrandt, Canadian Taxpayers Association – Alberta, and Shirley McClellan, former Alberta deputy premier and minister of finance and distinguished scholar in residence in the faculties of ALES and business, will give their opinions and provide a grade on this year's budget. 4:30–6 p.m. B-1 Tory Lecture Theatres.

### Egypt's Rocky Transition – What Now?

The Revolutions Continue: A MEAS public lecture series discussing the past, present and future of the Arab revolutions, Islamism and the transition to democracy, gender equality and minority rights, and liberalism, populism and the left. 5–7 p.m. 1-91 HM Tory. Annual Shevchenko

Lecture. Kateryna Levchenko with the International Women's Rights Center La Strada Ukraine, will be on hand to give a talk entitled Indifference to the Violation of Women's Rights in Ukraine as a Social Problem. 7–9 p.m. B-95 HM Tory.

### MARCH 22

**Augustana Student Grant Art Exhibition.** Augustana students applying for visual art scholarships present their work in a student exhibition. 9 a.m.–4 p.m. Augustana Auxiliary Building Visual Art Studio, Camrose.

**Trafficking of Women in Ukraine: Governmental and Nongovernmental Responses.** An international contingent of experts will be on hand to speak on this topic. Speakers include Linda Duncan, MP Edmonton-Strathcona and David Kilgour, former MP, secretary of state and cabinet minister. 9 a.m.–4:30 p.m. 236-238 TELUS Centre.

**Randomness and Pseudorandomness.** Avi Wigderson of the Institute of Advanced Study at Princeton, New Jersey, will be on hand to give a talk about whether the universe is inherently deterministic or probabilistic, and perhaps more importantly, whether we can tell the difference between the two. 3–4:30 p.m. 1-160 CCIS.

### MARCH 23

**U of A Mixed Chorus and Faculty of Education Handbell Ringers.** 7:30–9 p.m. Augustana Chapel, Camrose.

### MARCH 25

**Noon Music.** Patricia Tao piano class concert. Noon–1 p.m. Convocation Hall.

## classified ads

### ACCOMMODATIONS FOR RENT

FURNISHED URBAN CONDO TO RENT. <https://www.airbnb.ca/rooms/567200>. Email: [summerlease41or2@gmail.com](mailto:summerlease41or2@gmail.com). Messages: 780-760-7863.

### SERVICES

OVER 40? - [WWW.ourwow.info](http://WWW.ourwow.info). Order from [www.jusuru.com/change](http://www.jusuru.com/change) or 780-239-8305.



# WALKING WITH OUR SISTERS

Volunteers from across the campus are invited to take part in the creation of a commemorative art installation entitled "Walking With Our Sisters." When complete, the exhibit will consist of more than 600 moccasin vamps meant to represent missing or murdered Aboriginal women or girls across Canada, and to help draw attention to this injustice. Every Wednesday from 11 a.m. to 1 p.m. until the end of term, guests are welcome to stop by the Aboriginal Student Council space, located in the North Power Plant, to help bead an unfinished moccasin and help bring awareness and honour the memory of these women's unfinished lives.

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BackPage*



PHOTOGRAPHY  
RICHARD SIEMENS, MARKETING & COMMUNICATIONS